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From conflict to collaboration: Atewa Forest governance

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Abstract

The problem of forest degradation and loss has become the concern of many countries. To address this challenge, some collaborate in sustainable forest management. The most successful outcomes, however, are observed where local participation is an essential part of conservation efforts. In Ghana, forests have experienced various degrees of exploitation over the years, resulting in their ecological decline. Despite its designation as a protected area for biodiversity and ecosystem services, the Atewa Range Forest Reserve in Ghana has been significantly impacted by deforestation, illegal mining, and other destructive activities. The purpose of this paper is to examine ecologically based management approaches that could be adopted to generate beneficial outcomes for all forest stakeholders and actors in Ghana. The study sampled forest stakeholders in Kwabeng, the administrative capital of the Atewa West District, to understand forest governance challenges and outline strategies for overcoming them. The study revealed that a bottom-up all-inclusive approach to managing forest resources is necessary. This paper, therefore, proposes an integrated forest governance that prioritizes the UN Sustainable Development Goal 15—Life on Land-related to forest preservation.

KEYWORDS
Atewa Forest, benefit sharing, ecological, governance, mining, stakeholder

1 | INTRODUCTION

Although forests are an important part of many African countries' socio-economic development agenda, they have suffered severe deterioration caused by multiple anthropogenic activities (Giliba et al., 2011). The UN Food and Agriculture Organization [FAO] (2020) reported that from 1990 to 2020, the continent's rate of net forest loss has increased in each of the three decades. FAO (2020) reported a loss of 3.9 million hectares of forest lands in Africa from 2010 to 2020, the highest annual rate in the world. As a result, many Governments have launched a number of ecosystem management initiatives to halt and reverse deforestation. Some countries have also encouraged local communities' participation in conservation efforts, focusing on the welfare of their members, thus improving people's livelihoods, and conserving forest systems through effective cooperation and participation (Tokola et al., 2009).

In Ghana, forests have been vulnerable to excessive exploitation and conversion to unsustainable uses, leading to a steep reduction in the country's forest cover (Tesfahunegn et al., 2021). This drastic decline has been exacerbated by weak public institutions, pressures induced by population growth, and aspirations for economic development. Recently, the Government of Ghana responded to this menace through a number of measures, yet the country's forest governance still faces numerous challenges. In order to understand the problem and formulate strategies for its solution, this paper is introducing an interactive governance model for forest management.

2 | LITERATURE REVIEW

2.1 | Theoretical foundations of forest governance

This study's theoretical discourses examined forest conditions in Ghana and the interactive governance theory as an approach to forest governance. Kooiman and Bavinck (2005:17) demonstrate how this framework helps to outline general principles of governance, defining them as the "whole of public and private interactions taken on a day-to-day basis to create opportunities for societies". We apply this definition to societal problems related to forest exploitation and reveal potential opportunities for society in general. The model can be used to explain how ecologically based management strategies help to reduce conflicts of various scales and at different levels. In the study of political ecology, a number of themes emerge, and this has many implications for forest governance. For instance, the concept of power and social action (Montouroy, 2016) are important considerations in ensuring effective forest governance. Many other themes, such as environmental change, cross-section interactions, and resilience and adaptation to global climate change, have also gained considerable attention among scholars (Adger, 2000; Batterbury & Mortimore, 2013). Being a dominant discourse in international literature on conservation, political ecology has focused on concepts such as ownership, power, participation, local and indigenous control of resources, management, and access.

2.2 | Forest governance in Ghana

Forest governance has become an important theme in international development discourse since the late 1980s. Across the world and in many jurisdictions, a potential approach to achieving forest sustainability is collaborative forest governance (Klooster & Masera, 2000). Studies have pointed out that at its core there must be local communities. This approach to forest governance not only conserves forest systems but also improves the livelihood and welfare of indigenous and local communities. It is empowered by their participation and cooperation (Tokola et al., 2009). This explains the approach as a two-edged sword that improves community wellbeing while conserving forest resources.

In Ghana, forest governance is at the heart of the country's agenda for development. The central Government, global actors, NGOs, civil society groups, and the private sector, are committing to many initiatives in order to reinforce governance processes responsible for forest sustainability (Marfo, 2006). Some of the initiatives include the Voluntary Partnership Agreement (VPA) with the European Union, intended to combat illegal logging and strengthen forest governance, the Reducing Emissions from Deforestation and Forest Degradation (REDD+) framework, the Ghana Natural Resource and Environment Governance (NREG) Review, the Forest Law Enforcement, Governance and Trade (FLEGT), to mention a few (Derkyi, 2012). These initiatives indicate to what extent forests and their resources are at the core of Ghanaian communities. There are also many ongoing initiatives for the protection of forest lands, developed by the Forestry Commission of Ghana, in collaboration with the Ministry of Lands and Natural Resources (Derkyi, 2012).

These major initiatives, however, encountered numerous conflicts and challenges. The lack of effective conflict resolution mechanisms undermines attempts to improve forest conditions (Ostrom, 1999; Yasmi, 2007). Unsustainable community activities comprise another main complication in the forest governance in Ghana. Some of them include illegal mining, called "galamsey," chainsaw operations, and exploitation of timber. Farming, which is sometimes performed on lands in forest reserves and induced by growing populations, has also been a major concern for forest conservation. Underlying drivers of forest governance challenges are multiple and interdependent. These drivers include but are not limited to vague policy directions, failure on the part of institutional frameworks, poverty, and different land use competition (Derkyi, 2012; Marfo, 2006). Contreras-Hermosilla (2002) observed that in many other parts of the world, effective forest governance is challenged by other factors such as weak law enforcement, corruption, and tenure insecurity.

2.3 | Interactive governance model: An approach to Forest governance

Over the last few decades, there has been more evidence of a close link between ecological sustainability and communities' involvement in the discussions over forestry management (Baker et al., 2003; Larson & Soto, 2008). Such dialogues surrounding forest governance consider an all-inclusive approach to the planning, development, and management of community forests as a necessary requirement for success in preservation efforts. Kooiman and Bavinck (2005: 17) refer to this model as an "interactive governance approach" to managing community resources. Despite having its roots in fisheries, the interactive governance approach has been appropriated as an innovative way to manage forest resources. It has helped curb degradation (Calderon & Nawir, 2006), improved justice and equity among and within communities, enhanced the balance of power and participation at all levels and ensured the conservation of forest resources. Equity in representation and power dynamics must be at the core of every governance or management approach. That is to say, that creation of societal opportunities must include, but not be limited to an all-inclusive approach to decision-making.

Kooiman and Bavinck (2005), regard "interaction" as the most important feature of governance. According to them, attention to three elements in the governance of community-based projects—structure, actors, and interaction—is crucial. Actors operate within frameworks and guidelines that include the law, technical and material possibilities, culture, and agreements, thus comprising structures. In their model, actors indicate individuals, and all social units including households, and other stakeholders that possess the ability to act. The last element, interaction, refer to all specific actions that actors undertake on a day-to-day basis to ensure that new directions are developed (Kooiman & Bavinck, 2005: 17). Also from this model, three main components of the interactive governance model can be identified. These are the governing system (GS), the system-to-be-governed (SG), and governing interactions (GI), which is the mediating component between the two. The activation of all three components ensures the "governability of the system" (Figure 1).

The human-made GS "consists of institutions and steering instruments and mechanisms" (Jentoft, 2007: 360). In the context of Ghana's forest management framework, this includes the institutions mandated and tasked with the

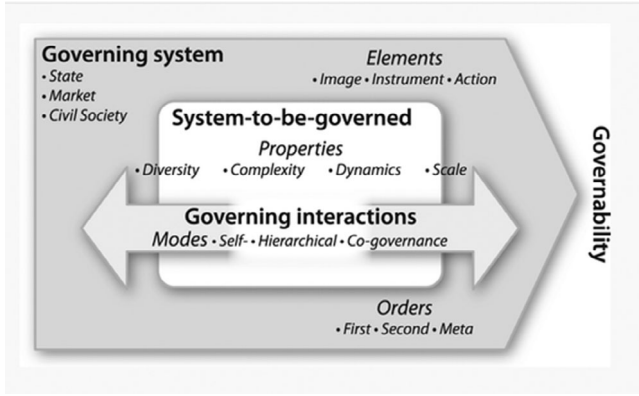

FIGURE 1 Interactive governance model. Adapted from Kooiman & Bavinck (2013).

functions of developing and implementing policies for effective forest governance initiatives. Examples of such institutions include the Forestry Commission of Ghana and the Ministry of Lands and Natural Resources. The system-to-be-governed on the other hand represents both natural and socioeconomic aspects, over which the GS exerts control (Chuenpagdee & Jentoft, 2009). The natural system represents an ecosystem and the resources it contains, while resource users and stakeholders represent the socioeconomic system. Both the GS and SG share diversity, complexity, and dynamics. Their similarities are due to the interdependencies and linkages between all elements (Chuenpagdee et al., 2008). The third component, governance interactions (GI), represents day-to-day relationships between the GS and the SG. The outcomes of these interactions determine the degree of governability of a system. In community forest management contexts, the outcomes of the day-to-day interactions between local communities and governing bodies determine the extent to which forest governance initiatives and efforts help in environmental protection, conservation, and community health and wellbeing.

The interactive governance model is designed to engage community leaders, maximize local economic benefits, continue with existing community initiatives, and employ residents, so that income generated from tourism stays in the community. Such an approach, in effect, supports equitable distribution of material benefits, just power relations and conservation concerns. Addressing forest governance issues in Ghana using a framework of interactive governance is imperative, as it highlights all the components of the system and prescribes collaborative governance actions.

2.4 | Some key issues in community forest governance

2.4.1 | Accountability

Accountability has become an important consideration in ensuring that natural, economic, physical and human resources are effectively and efficiently allocated and utilized (Musavengane & Simatele, 2016; Schillemans, 2015; Yeboah-Assiamah et al., 2016). Burgos and Mertens (2017) noted that over the years, there has been a global shift in approaches used in managing natural resources. They identified this tendency as a transition from top-down strategies to more localized and decentralized collaborative tactics. At the heart of these top-down approaches is accountability. For this study, researchers adopted the definition of accountability by Lockwood et al. (2010: 993) as "(*a*) the allocation and acceptance of responsibility for decisions and actions and (*b*) the demonstration of whether and how these responsibilities have been met". Benson (2012) calls it "a principle which is considered a measure of good governance".

In a forest governance context, accountability is a complex concept. For this reason, Musavengane and Siakwah (2020) argue that every attempt to achieve accountability in forest governance contexts must be all-inclusive, participatory, and must embody issues of power balances, trust and social justice. This suggests that accountability is more than just about institutional integrity, laws and theories. It includes assessing all actors and stakeholders who formulate and implement policies and laws, and determining under what conditions those policies are formulated, at what scales and levels, and how they are negotiated with stakeholders to shape governance of forest resources.

2.4.2 | Benefit sharing

Sharing benefits from natural resources has evolved since it was first formalized in international law in 1992 through the Convention on Biological Diversity. This convention was instituted to tackle governance challenges of socio-ecological systems, especially in developing countries (Nkhata et al., 2012). Its initial focus was upon the distribution of financial benefits, however in recent years, it has been broadened to encompass other forms of social responsibility and accountability (Thuy et al., 2013). Mahanty et al. (2009) noted that in forest governance, benefit sharing can be discussed under two main categories. These are *benefit flow* and *benefit sharing*. In the discussion of benefit flow, property rights, permits, and taxes or royalties are the key aspects of resource governance. Benefit sharing, on the other hand, discusses the influence of local governance, for stakeholder participation, and community conditions in determining who gets rewarded, why they should be rewarded, under what conditions the rewards should be given.

There exists a widespread agreement that in order to have forest governance projects succeed, there must be provisions for the early and regular supply material benefits to forest community members (Luttrell et al., 2015). Thu Thuy et al. (2013), in their effort to provide a global overview and up-to-date profile of REDD+ benefit-sharing mechanisms, and to analyze the political and economic factors influencing their design and setting, found that the design and process of benefit sharing should incorporate a clear objective for both national and local levels. Additionally, they recommended that for efficient, effective and equitable benefit sharing mechanisms, there must be a careful analysis of all the options that are available and their potential effects on communities and all stakeholders. This, they say, is necessary for informed decision-making.

2.4.3 | Stakeholder participation

Participatory forest governance requires careful planning by key actors. For decision-making in the governance of natural resources in general, a wide range of transparent reforms and considerable local control and discretion are crucial requirements (Blaikie, 2006; Ribot, 2002). It is important to understand the role of stakeholders in ensuring the success or failure of any forest governance effort. Wattoo et al. (2010), in examining stakeholders' role and interactions in forest governance in Northwest Pakistan, found that stakeholders play a major role and should be required to interact in the governance processes at all levels because the scale of involvement influences the effectiveness of governance initiatives. Under various circumstances, stakeholders are linked by a complex array of interests and values (Blaikie, 2006). Hence the need for the prioritization of an all-inclusive approach to forest governance.

2.5 | Study location

This study was conducted in the administrative capital Kwabeng, located in the Atewa West District of Ghana. Akyem Akrofufu, Akyem Bomaa, and Akyem Moseaso are the neighboring towns, respectively located to the north, south and west of Kwabeng. The eastern side of Kwabeng shares boundaries with the Atewa-Atwiredu Range. Kwabeng is very close to the Birem River, which extends for about 9.66 km westwards from the town of Akyem

Anyinam, located on the Accra-Kumasi highway. Kwabeng's location is very strategic, in that it connects many routes that lead to many busy towns in the district. Some of these towns include Asamankese, Akyem Akropong, Kade, Akwaboaso, Abomaso and Tumfa. The soil type is also very conducive for the cultivation of staple food crops, such as cassava, cocoyam, plantain, and different types of yams. Notable among the cash crops mostly cultivated by natives are cocoa and oil palm. Another important feature of Kwabeng is its abundance of mineral resources, such as alluvial gold and bauxite. As a result, the region has been known for mining activities, dating back to the time when indigenes migrated into present day Kwabeng.

2.6 | Atewa range forest reserve

Since 1926, the Atewa range forest reserve has been designated as a forest reserve and a Globally Significant Biodiversity Area (GSBA), as well as an Important Bird Area (IBA) (Abu-Juam et al., 2003). Characterized by series of spectacular plateaus, the mountain range runs roughly from north to the south in south-eastern Ghana (Hall & Swaine, 1981). Atewa Forest covers about 33.5% of all closed forests in the Eastern Region of Ghana. It is also one of the only two forest reserves in the country with Upland Evergreen Forest (Abu-Juam et al., 2003). It serves as habitat for many rare and endemic species, including many butterflies, and black star plants (Hawthorne, 1998; Larsen, 2008). The forest has been designated as an important national reserve because the mountains contain the headwaters of the Densu, Birim and Ayensu Rivers. Over the years, the rivers have served as sources of agricultural, industrial, and domestic water supplies for the neighboring communities, as well as many distant towns and cities, including Accra, the capital city of Ghana (McCullough et al., 2007) (Figure 2).

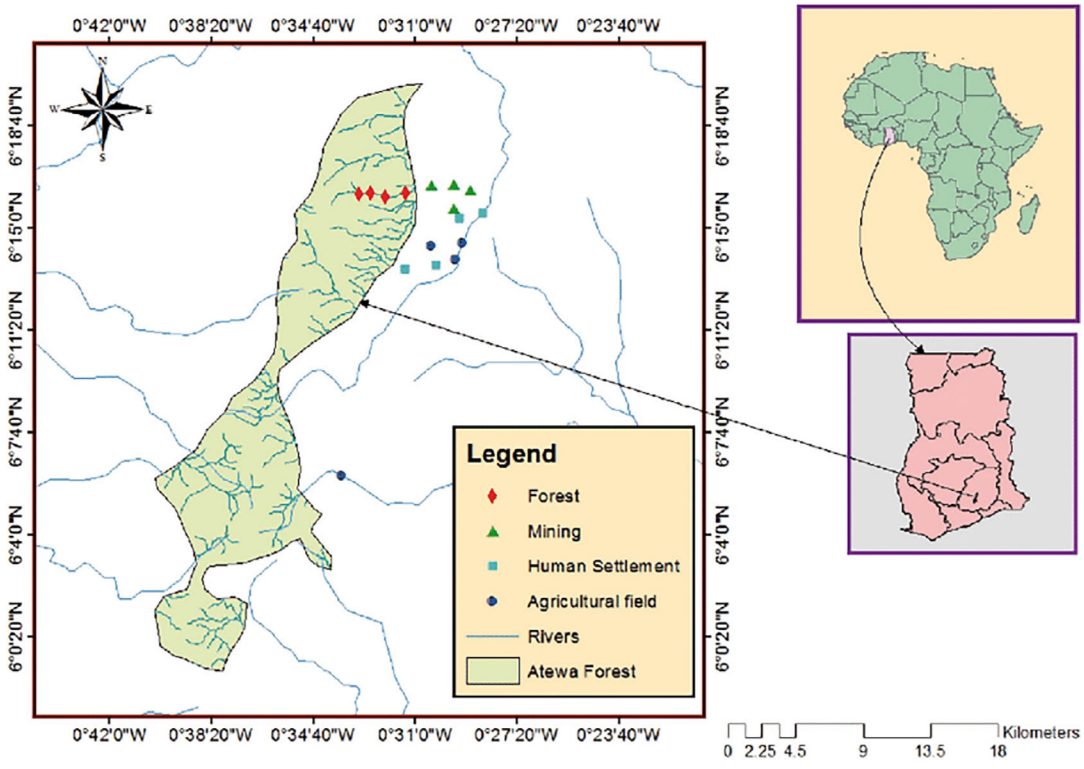

FIGURE 2 Map of Atewa Forest area. *Source*: Seidu et al. (2018).

2.7 | Methodology

In order to address the research objectives, the qualitative case study approach was adopted. Given the explorative nature of the investigation (Creswell, 2010), this strategy was suitable in the context of Atewa. It sought to address the descriptive, that is "what", and explanatory, the "how" or "why", questions to produce clear and insightful meanings to stakeholders' perspectives on forest governance in Ghana. The fieldwork for this research lasted from the 26th of December 2018 to the 4th of February 2019 in Kwabeng. A total of three government officials, one from the Ghana Tourism Authority (GTA), and two from the Forestry Commission of Ghana participated in the study. From the Kwabeng Community, 2 forest guards, 14 adults, and 12 students from the Kwabeng Anglican Senior High Technical School (KASHTS) also participated in the research.

To recruit these participants, non-probability sampling techniques were employed. Specifically, purposive sampling was used to recruit the government officials. The National Forestry Commission was served an invitation letter outlining the purpose of the study and requesting officials' support in answering interview questions. The Office of the Forest Commissioner of Ghana directed the researcher to the regional and district forestry commission to conduct the interviews. After the purpose of the research had been outlined, one forestry official from the local and one from the district office agreed to participate in the interviews. The same was done for the official from the GTA. After the researcher had outlined the purpose of the investigation, an official in charge of tourism development in nature-based environments agreed to participate in the study.

To recruit adults from the community, permission was sought from the District Chief Executive and the assemblyman of Kwabeng. Thereafter, a public announcement was made with the help of the public address system to inform the community about the purpose of the study. Interested people were invited and dates set for interviews. After eligibility and consent criteria were met, the first group of eight community members was interviewed. To get more participants, a snowball sampling technique, which relied on the recommendations by the first group of respondents, was used to recruit six additional participants. The community members group included farmers, small-scale miners, teachers, petty traders, and other small business owners.

To recruit student participants, permission was sought from the school board, after which details of the research were explained to the students and consents sought before data collection began. For students who showed interest, eligibility and consent were sought and met before data collection began. Convenience sampling was used to select student participants based on a first-come-first-served basis. Lastly, two officials from *A Rocha Ghana*, an NGO committed to forest conservation, were also interviewed. This NGO was chosen because of their on-going work on forest conservation in the Atewa West District. It is important to note that the sample size for each of the participant groups was mainly based on availability and willingness of the participants to take part in the study.

Data collected from interviews were recorded in a database of notes and recordings, which were used for the analysis and discussion. Before the actual data collection began, a simulation was conducted on a small scale. The importance of this simulation was to detect and correct any potential errors in language, eliminate ambiguous words, and take care of any other flaws that may make focus group questions confusing and prevent successful interviews. The simulation involved in-depth interviews with three key informants: the assembly man, a teacher at KASHTS, and one community elder. The length of interviews and focus groups discussions ranged from 45 min to 2.5 h.

To allow for detailed coding (Strauss & Corbin, 1998), all interviews were tape-recorded and later transcribed verbatim. For the analysis of transcribed data, the grounded theory approach was adopted. This involved manual thematic coding in order to arrive at unifying themes and the main underlying issues arising from the data (Strauss & Corbin, 1998). The researcher sought to identify themes of the narratives by analyzing words and sentence structures. Emerging codes were grounded in community forests, forest livelihoods, forest degradation, and interactive governance scholarship. To complement the transcripts from the data generated, other supplementary documents were also analyzed side-by-side. Some of these documents included press releases, internal and external reports, and policy documents from the Forestry Commission of Ghana. The purpose was

to identify contradictory or confirmatory information that relates to the themes that emerged in the transcripts. This process of side-by-side analysis provided for determining validity in a qualitative context (Yin, 2009).

3 | RESULTS

3.1 | Positions, interests, and values of stakeholder groups sampled

Results from data generation indicated that there exist at different scales and levels, many dynamic and complex actors and stakeholders in the management and use of Ghana's forest resources. In the context of the Atewa Forest, each of these stakeholder groups has its respective position, hence different interests and values placed on the forest. It is important to recognize these diverse positions because what ultimately matters in terms of action in most forest communities are the positions, interests, and value perceptions of those who will determine what happens to the forest (Gregersen & Contreras, 1992). Of the sample participants, it was clear that there were, in most cases, some similarities among various groups of stakeholders, regarding forest interests and values. Table 1 summarizes participants' respective positions:

The data revealed two main positions taken by stakeholders and actors regarding values placed on forest resources. The eco-centric ideology that centres values on ecology, is based on the idea that humans are subject to nature, rather than in control of it, while the technocentric idea postulates that the technological developments should have the ability to control, affect and protect the environment. Responses show that apart from the students, *A Rocha* Ghana, and the GTA, most other participants share the view that even though forest degradation problems exist, technology and scientific advancement are the solutions to many environmental problems. The table clearly demonstrates that forest resources mean different things to different stakeholder groups. This is why it is important for an all-inclusive approach to forest governance.

TABLE 1 Showing actors/stakeholders, positions, interests, and values placed on the Atewa Forest

Sample group	Position	Interests/expectations	Value
Government (Central and Local Forestry Commission)	Technocentric	Economic development Employment creation Infrastructural development International trade and collaborations Environmental sustainability	Economic/Environmental
Ghana Tourism Authority (GTA)	Eco-centric	Biodiversity protection Ecotourism development Healthy environment	Environmental/Economic
Community members	Eco-centric/ Technocentric	Food from farms Water for domestic use/Livestock/ small business/ farming	Cultural/Social/ Environmental
NGOs (A Rocha)	Eco-centric	Ecosystem development and protection Biodiversity hotspots SDGs	Environmental
Educational Institutions (students)	Eco-centric	Ecosystem development/protection Biodiversity hotspots SDGs	Environmental

Source: Authors.

3.1.1 | Challenges of Atewa Forest governance

Data from fieldwork revealed that forest governance is challenged by multiple factors that culminate in many degrees of forest degradation and biodiversity loss caused, to some extent, by conflicts around natural resources. This range of challenges that prevents effective forest governance includes, but is not limited to, institutional, natural, and community-related issues.

Among other problems in the Atewa Forest, it is necessary to mention weak institutions and insufficient funds for forest protection. It was clear from discussions with representatives of institutions in charge of forest governance that most conflicts over natural resources arise due to failure to execute their mandate. Many study participants identified corruption involving both individuals and public officials as one of the main reasons for that. Unfortunately, many potential aspects of forest governance appear on paper only, with no real agency to execute them. A forestry official admitted that in most cases, there were no internal mechanisms that would be proven effective in dealing with forest degradation and biodiversity loss. Additionally, external and internal audits of private and public forest agencies, and commensurate actions for breaches of forest laws, have not been effective. He summarized his thoughts by saying:

> The truth is that we as an institution do not have enough funds to clearly draw the legal boundaries of admitted farms. You see, the greatest challenge we have as a commission in the Atewa Forest is these admitted farms. The communities have legal rights to some portions of the land but because we do not even know the boundaries, they keep encroaching and enlarging their farms into the forests. We have made many appeals but to no avail. This makes it hard for us to do our work effectively…
>
> (IDI Forestry Official, Fieldwork, 2019).

The second main challenge to effective forest governance in the Atewa Forest is mining. Discussions with participants revealed that apart from farm encroachment, bushmeat hunting, and illegal and unsustainable logging, the Atewa Forest Reserve has been under pressure by other threats such as artisanal gold and bauxite mining and exploration [referred to as "galamsey" in local parlance]. The Government of Ghana has outlined its plans to mine the Atewa Range Forest Reserve as part of a national infrastructure development programme. It was agreed that the bauxite deposit was to be used as a down payment on a mortgage for China's Sinohydro Corporation Limited to fund the country's development drive. In June 2019, the President of Ghana, Nana Addo Dankwa Akufo-Addo, declared: "… the full-scale exploitation of Ghanaian bauxite resources will commence. I am satisfied with what I have been told and with what has been demonstrated to me. I'm assured that it is possible for us to get that red matter out without disturbing the wildlife of the Atewa mountains" (Knott, 2019). The Deputy Director of *A Rocha* Ghana, an NGO for conservation, explained the extent to which the already existing illegal mining has resulted in forest loss, and how further plans by the Government could worsen the situation:

"…the method being proposed by the Government and all these mining companies is dangerous. First, they have to remove the vegetation and topsoil, then use dangerous explosives to break up the rock beneath. You see, bauxite mining is happening in Awaso, it is somewhere in the Western Region. If you go there now, the only thing you see is red mud that has replaced the once thick forest rich in many natural resources. This is unacceptable and will further deepen Ghana's problem of forest loss and degradation, water scarcity and biodiversity loss". (IDI, *A Rocha Ghana*, Fieldwork, 2019).

The third challenge to effective forest governance, according to many participants from the Kwabeng community, is the lack of participation by all stakeholders in decision-making. While it is evident from literature that participation of stakeholders, particularly communities around the forests, in forest governance helps to achieve sustainable forest management and to generate positive outcomes in many countries, the situation with the Atewa Forest is different. There, the approach to governance is top-down in nature. Some of the participants admitted that

most of the challenges being faced by law enforcement agencies are mainly due to the fact that local community members feel left out from decision-making. One Kwabeng community member, who has been a resident in that region for nearly 16 years, expressed his frustrations with the situation. His major concern was that there was no community or stakeholder involvement in forest governance, and that his fellow community members usually learned about decisions made by the Government only via a public address system or the radio. In his opinion, this is the cause of many conflicts that have existed between governments and local communities. He said:

> "We are not involved in any decision-making. In most cases, we are not even aware of what is happening. With regard to forest governance, we only find out about any developments from radio announcements, after decisions have been made. It makes us feel that whatever belongs to us is going to be taken away. In my opinion, this is the reason for so many conflicts."
>
> (IDI Fieldwork, 2019).

The last challenge to effective forest governance was identified as the lack of education about dangers of forest loss. Interviews and focus groups with stakeholders from all levels indicate that because people are not fully aware of the detrimental consequences from their actions upon the forest and their own lives, they continue to engage in activities that threaten the Atewa Forest. The FAO (2020) recommended that effective forest governance can only be achieved through a dynamic process that makes it possible for all stakeholders to adapt to changing environments, learn about threats to forests, and take individual and collective action. This has already been achieved in many parts of the world. One participant shared her opinion on the lack of education and awareness about the consequences of forest loss. She explained:

> "I believe that education enables individuals to make informed decisions and to act on behalf of sustainable development. If people are aware of the dangers that come to a community when forests are destroyed, they will take the right actions. … Unfortunately, in most forest communities, such as Kwabeng, education is lacking. If people know the dangerous consequences of their actions upon the forest and their own lives, they will change their behaviors"
>
> (IDI Fieldwork, 2019).

It is clear from the discussions that education about dangerous consequences of forest loss plays a significant role in effective forest governance. When a community considers a forest only as a food resource, the members are likely to over-exploit it for this purpose. Other participants explained further that most forest areas in Ghana, such as the Atewa forest, have many other valuable resources. It is necessary to raise people's awareness about them as well as about the detrimental impacts of unsustainable forest practices in order to achieve sustainability.

3.1.2 | Effective forest governance strategies

Having shared their opinions on the challenges of Atewa Forest governance, the participants also shared their thoughts on what they considered effective forest governance strategies. According to participants from the Forestry Commission of Ghana and the Ghana Tourism Authority, strengthening institutional collaboration is one effective strategy for forest governance. They explained that clearly defined institutions that collaborate to execute their mandates can effectively address the challenges facing resources governance, access, and use. A forestry official pointed out that a lack of synergy in the duties and authorities of the respective institutions renders all efforts futile. He noted that this makes it difficult for each institution to execute its mandate. A second official stated:

> "Our work becomes easier when the various institutions, such as ours, the Forestry Commission, all the way from local to national levels, understand clearly what our roles are. Sometimes, you hear that a development is taking place in relation to forestry, and it takes you by surprise. All the institutions have a vital role to play. If we can have a unified front, I believe that everyone will play their part, so we all achieve what we want"
>
> (IDI Forestry Official, Fieldwork, 2019).

Additionally, a forest guard explained what would comprise institutional strengthening. In his interview, he indicated that staff are not sufficiently resourced to carry out their duties. Lack of funds, equipment, and training makes it difficult for them to be effective as forest guards. He, therefore, called for the Government, donors, and the private sector to support their efforts at ensuring effective forest governance. He wondered:

> … how can only three forest guards protect this big forest? Most of the time, we get so tired that we are unable to go to every part of the forest. The "galamsey" people ride motorbikes into the very remote parts, but we cannot because we have to go on foot. We are even scared of losing our lives because the illegal miners sometimes try to kill us… the Government must first employ more guards and equip us with the necessary tools for our safety. This is very important. We need motorbikes, guns for self-defence, and enough incentives, so that we can give our best
>
> (IDI Forest Guard, Fieldwork, 2019).

Data from fieldwork suggests that another second strategy for effective forest governance is transparency and accountability. Interviews with participants revealed that without implicit transparency and accountability on the part of policy-makers, objectives of forest governance programs cannot be achieved to their full potential. Our observations during fieldwork, when taking a walk through the forest with the two forest guards revealed that many illegal activities result in regular tree loss. As in many developing countries, a substantial portion of revenues is lost, and many development goals of societies and forest communities remain unachieved. The assemblyman of Kwabeng suggested that transparency will be a way of dealing with the challenges of forest loss in Atewa Forest. In his interview, he lamented that:

> …in order to contribute to the sustainable development goals of protecting the environment and ending poverty, and continue our forest governance initiatives, we all need to combat illegal activities that take place in the forests. This includes "galamsey".

He noted that transparency and accountability can be complex concepts, theoretical implications of which do not always match the reality. However, in the governance of the Atewa Forest, accountability can be fostered through active community participation. Respondents lamented that in the case of the Atewa Forest, there is neither accountability nor transparency in its governance. They, therefore, called for clear conceptualization of these two conditions and the inclusion of all essential actors and stakeholders, especially local communities, in the negotiations.

The next strategy that was recommended by participants of the study is inter-stakeholder support platforms that would help to eliminate livelihood conflicts and promote collaboration for effective governance. Existing research points to the fact that inter-stakeholder platforms that allow for community participation have led to decisions that respond efficiently to community values and interests, and aided in the resolution of resource conflicts, building of trust, and educating communities about the environment. In the interview with the students of KASHTS, it was discussed that the creation of platforms for all stakeholders to deliberate over issues regarding the governance of the Atewa Forest carries greater chances for effective governance. A student explained that when all stakeholders are represented, and local community members have a role in management, with the commensurate authority and recognition, it helps to facilitate development. She indicated that:

> There is the need for the involvement of all stakeholders, especially local communities. This will provide increased livelihood opportunities for the poor, especially those living close to forest reserves. The reason is that when there are forest-related problems, such as natural disasters, it is those on the ground, that is forest communities, that suffer the most. It is for this reason that there must be abundant opportunities for all stakeholders to be involved in decision-making and action
>
> (IDI Fieldwork, 2019).

The responses of all participants suggest that it is important to build ownership and responsibility among stakeholders, especially with the local community, to manage and protect forests. This strategy, as revealed by the interviews, is effective in forest governance efforts.

The fourth concern of many respondents was the need for fair and equitable benefit sharing and provision of incentives. It was revealed in our interactions with the residents of Kwabeng that one of the reasons people in the community engage in illegal forest activities is their exclusion from the material benefits obtained from the forest by those who are in power. Participants lamented that for the most part, employment, as well as material benefits from forest resources, such as timber, or other forest products do not come to them. The concept of benefit sharing considers arrangements by which all stakeholders partake of the benefits that accrue from any project. The assemblyman of the Kwabeng community was of the view that if any type of forest governance project is to succeed, material benefits from forest resources must be provided in such a way that community members are not left out. He further noted that these benefits would have to be provided early, and on a regular basis. Discussing benefit sharing, a teacher from the KASHTS noted:

> "Benefit sharing is a complex issue that needs to be done fairly and equitably. When we talk about this, it should not only be understood as timber but must be extended to include investments in community development, cash, and access to forest resources. When all stakeholders partake of these benefits without any discrimination of any kind, they will support every governance effort that is introduced"
>
> (IDI Fieldwork, 2019).

4 | DISCUSSION

This discussion is meant to help to better understand the governance of the Atewa Forest in Ghana, to learn about the challenges that impede effective management efforts, as well as ecologically-based strategies that generate beneficial outcomes for all forest stakeholders in the Atewa's high forest zone. From a political ecology standpoint, there exist many dynamic interactions at multiple levels and scales between stakeholders and natural resource ecosystems. These interactions are regulated by institutions. To understand these relationships in the context of forest management, we adopted the interactive governance approach (Kooiman & Bavinck, 2005). The aim is to analyze the relations and day-to-day interactions between actors, stakeholders and the forest resources.

Ghana's development agenda has provided much appreciation for forest governance, which is evident in the level of support received from state as well as non-state actors, and the international community. The results of this study have demonstrated that forests, like all other venues of natural resources, have conflicting values attached to them and their uses. As explained by Adams (2015), in most forest communities, some groups of stakeholders want to preserve forest resources with their many endemic species, while other groups want to harvest the trees, food, and other forest products. Table 1 provides the different positions, interests and value perspectives of stakeholder groups of the Atewa Forest in the Kwabeng Community. Considering that there are multiple interests and values placed on forest resources, the study agrees with Derkyi (2012) about the application of the interactive governance model in understanding and accommodating these diverse positions of many actors and

stakeholders. This model clearly puts into perspective the various elements in the governance process and helps stipulate actions that ensure the governability of the human and non-human components.

The study makes it clear that most of the challenges facing Atewa Forest governance are anthropogenic. All the challenges identified are closely related, and have linkages to survival, development, and livelihood. Atewa Forest's challenges stem from many national and local development aspirations. Weak institutions, coupled with a lack of coordination among national, subnational and local governments contributed to the inability to find resolutions. The study demonstrated that despite many efforts at local and district levels to keep up with the latest grassroots developments and policies, low levels of coordination across all levels and scales of governance still exist. Castro and Nielsen (2003) admitted that low levels of coordination, as well as differences in power relations, result in ongoing disagreements among all stakeholders. The interactive governance framework allows for effective coordination between the national, regional, district, and local authorities on one hand, and the local community and all other stakeholders on the other. The framework also makes it possible for policies and regulations for forest governance to be clearly spelled out and enforced with fair and equitable power relations.

Apart from corruption, human and capital resources needed to enforce forest regulations are inadequate. Forest service workers, for example, Atewa Forest guards, faced many dangers and threats to their lives. Moreover, guards are not well equipped with tools and do not have too many incentives to carry out their mandate, hence they become compromised in many ways, then condone illegal forest activities. The Kwabeng community has also seen a drastic increase in mineral exploitation over the last couple of years. Small-scale mining activities are the most common form of exploitation in this community. They are performed by both licensed companies and illegal mining groups, known in Ghanaian parlance as "galamsey", and are linked to many forms of forest loss, holes dug, and many polluted water bodies. Even small-scale licensed mining companies engage in surface mining. Heavy-duty machines are used to clear portions of the forest, while turning the soils in search for gold. Several stakeholder groups have protested the plan by the government of Ghana to mine bauxite in the Atewa Forest, arguing that such activity will further worsen the problems of forest degradation in the region.

In March 2018, some community groups, NGOs, students, and many other interested and concerned stakeholders walked 95 km from Kyebi, one of the forest communities, to the presidential palace in Accra to protest the mining plans. Protesters carried placards with captions such as "Save Atewa Forest Now" and "Atewa is our heritage" to demonstrate the many ways in which the forest represents more than just a natural resource to them. This protest was carried out to mark the World Water Day. Unfortunately, forest-related conflicts between government and individuals, government and illegal mining groups, and livelihood concerns of community members have not been properly addressed.

Studies have shown that any attempt to achieve effective forest governance must include provisions for stakeholders to participate in all aspects of forest management. Unfortunately, in most forest communities, this is not the case (McKean & Ostrom, 1995). In Kwabeng and other forest communities, participation remains skewed towards the central government and a few "powerful members" of the community. The study demonstrates that the less "powerful" in forest contexts, mainly the local communities, are marginalized when it comes to decision-making about things that matter, and benefit sharing. Power struggles at local levels, socio-economic inequity, weak institutional relations, and conflicting interests among the Government, private entities, and communities have been identified as some of the reasons for this marginalization. As a result, conflict resolution among stakeholders becomes a challenge (Engel & Korf, 2005). Studies have pointed to major successes of forest governance through stakeholder participation. For instance, Blaikie (2006) found that decentralization of power in every participatory forest governance process enables communities to be efficient, sustainable and equitable in the management of their natural resources. For communities around the Atewa Forest Range, participation will mean a lot mainly due to their proximity to the forest. Studies on community participation, including Kugonza et al. (2009) and Holmes and Slater (2012), found that communities that live in close proximity to forests generally have a higher tendency of embracing participatory governance. It is for this reason that the interactive governance model, which recognizes forest-fringe communities as essential to an integrated system, is recommended in Atewa's context.

An effective inter-stakeholder platform carries the potential for promoting transparency and accountability, thus eliminating inter-stakeholder conflicts, while guaranteeing positive outcomes for everyone involved (Kooiman & Bavinck, 2005). Researchers, development experts, and policymakers have raised many questions about accountability and transparency in natural resource contexts (Tantoh & McKay, 2020; Siakwah, 2017). In a number of African countries, many communities have not benefited from natural resources in any way due to the lack of accountability and transparency (Agyei & Adjei, 2017). Dubnick (2012), attempting to simplify accountability from its Anglo-Norman roots, defined it as the rendering of an account of something to someone (86). Accountability can be either forward-looking or accounting for events of the past. Accountability means that power is exercised fairly and equally with regard to all stakeholders. It also requires an acknowledgement of a variety of value systems (Musavengane & Siakwah, 2020). Our study revealed that community trust can be broken when members lack confidence in the governance of community resources (Musavengane & Simatele, 2016). This broken trust can result in community members distancing themselves from all governance efforts, thereby making their own decisions regarding natural resources. This situation is evident in the case of Atewa Forest, where most causes of forest degradation can be attributed to mistrust of public officials by other stakeholders. As part of the transparency and accountability process, stakeholder participation is important in building social cohesion and trust, which helps in the overall actualization of governance objectives.

Additionally, proper educational activities, grounded in the interactive governance model and conflict management mechanisms, have the potential of curbing the challenges facing effective forest governance in the Atewa Forest region. Raising awareness about detrimental consequences of forest loss should be prioritized at all levels. All channels of communication available in the Kwabeng community, such as the local radio stations, should be used to explain the adverse impacts of forest loss upon the community's overall wellbeing. Additional educational efforts are needed in order to proceed with the implementation of the UN sustainable development agenda and achievement of the Sustainable Development Goals (SDGs) in the context of effective governance of forest resources. The 17 SDGs were designed to be a blueprint to achieve a better and more sustainable future for all (UNWTO & UNDP, 2018). They have been seen as an urgent call for action by both developed and developing countries in a global partnership. It is important to note, however, that establishing the goals is not enough for successful forest governance. Boluk et al. (2019) emphasized that prospects carried by these goals and what the UN claims they could achieve need to be complemented with analysis from a diversity of perspectives and approaches, coupled with critical thinking and education. Given the right conditions, and appropriate partnerships and education, forest governance stands a chance of being successful even in the face of contemporary challenges.

With the Ghana Government's plan to mine bauxite in the Atewa Forest already reaching the commencement stage, it is important to recognize the assertion made by Smyth and Dumanski (1993) that "the main objective of sustainable land management is to harmonize the complementary goals of providing environmental, economic, and social opportunities for the benefit of present and future generations while maintaining and enhancing the quality of land resources" (1). Their stance should serve as a check upon any land exploitation activities. There is the argument that not all mining impacts are negative. This being said, it is crucial to acknowledge that for effective forest management in the Atewa Forest, there is the need for a clear roadmap for any type of mining. It must clearly spell out all aspects of the plan, including the technologies, methods, and tools to be used, their guidelines for meeting lower emissions targets, energy, waste and water use requirements, and plans for rehabilitation standards and strategies.

Finally, benefit sharing is another strategy to reduce forest degradation and loss in the Atewa Forest region. As established by the Centre for International Forestry Research (CIFOR, 2014), it provides a system, which is clear enough to designate who gets rewarded, why they should be rewarded, under what conditions rewards should be given, in what proportions, and for what extended period of time. What needs to happen in the Atewa Forest case is both benefit flow and benefit sharing (Mahanty et al., 2009). The Forestry Commission of Ghana, in collaboration with all stakeholders, needs to design mechanisms that spell out how property rights, permits, taxes and royalties need to be executed. There must also be a unified effort to clearly define how local governments influence key

issues, such as stakeholder participation. As put forward by Luttrell et al. (2015), benefit sharing mechanisms must involve a variety of governance instruments and structures for the distribution of financial and other non-financial benefits. Actors in the Atewa Forest governance system must fairly institute community conditions that are in place to determine who gets rewarded, why they should be rewarded, and under what conditions rewards should be given. Studies conducted in the Philippines, Mexico and Nepal revealed that benefit sharing as a holistic ideology has become indispensable in creating incentives and an impetus for a change in behaviors and in unsustainable land use practices (Calderon & Nawir, 2006; Pokharel, 2015). As established in the data analysis, the legitimacy of governance efforts, and the commensurate support for them might be threatened, if all stakeholders see the GS and structures as unfair.

5 | CONCLUSION

The main purpose of this study was to examine ecologically based management approaches that generate win-win outcomes for all stakeholders and actors in the governance of the Atewa Forest in Ghana. It sought to explain how forests and livelihood conflicts can be understood and constructively managed to the benefit of all stakeholders. To fully understand the key elements and the demands of the study, the interactive governance theory has been utilized. The study has demonstrated that the interactive governance model can be tweaked to inculcate some important concepts that relate to forest resources management, forest conflicts management, stakeholder participation, and benefit sharing.

Also, the study has recommended ecologically based management approaches that can be adopted to minimize conflicts in forest communities in Ghana, specifically around the Atewa Forest. It has also provided a framework for strengthening although already existing but weak forest governance processes in Ghana, shedding light on the ways in which forest resources are perceived and valued by different stakeholders in the Atewa Forest Region. The case of the Atewa Forest reveals weak institutions and insufficient funds for forest protection, challenges related to mining, a lack of participation by all stakeholders in decision-making, and a lack of education on dangers of forest loss as the principal challenges of effective forest governance. As explained, all of them are closely interrelated.

For this reason, Pagdee et al. (2006) argue that success or failure of forest governance and community forest management is almost always case specific. This depends mainly on the ecological, social, and economic context of the local community. Understanding the various contexts (ecological, social and economic), and prioritizing stakeholder expectations and interests help to ensure the protection of community rights and benefits, and at the same time improving communities' ability to respond to changes. It is important to state, however, that this study is not necessarily adding new insights to the discourses of conflicts around forest governance. Rather, it is situating the unique case of Atewa Forest in the existing literature in order to add to the policy dialogue of Ghana. The study focused on the community of Kwabeng and its unique history in the grand scheme of things. Our research has therefore highlighted strategies, including education about the Sustainable Development Goals, that can be employed in the face of contemporary issues in order to promote effective forest governance in the Atewa Forest Region. It was also established that these strategies, when combined with a bottom-up development approach, carry the potential of generating win-win outcomes for all stakeholders.

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REFERENCES

Abu-Juam, M., Obiaw, E., Kwakye, Y., Ninnoni, R., Owusu, E. H., & Asamoah, A. (2003). *Biodiversity management plan for the Atewa range forest reserves*. Forestry Commission.

Adams, W. M. (2015). The political ecology of conservation conflicts. In S. M. Redpath, R. J. Gutiérrez, K. A. Wood, & J. C. Young (Eds.), *Conflicts in conservation: Navigating towards solutions*. Cambridge University Press.

Adger, W. N. (2000). Social and ecological resilience: Are they related? *Progress in Human Geography*, *24*(3), 347–364.

Agyei, F. K., & Adjei, P. O. W. (2017). Representation without accountability in forestry: Experiences from the social responsibility agreement in Ghana. *Forest Policy and Economics*, *80*, 34–43.

Baker, M., Kusel, J., Borchers, J. G., & Wills, L. (Eds.). (2003). *Community forestry in the United States: Learning from the past, crafting the future*. Island Press.

Batterbury, S., & Mortimore, M. J. (2013). Adapting to drought in the West African Sahel. In J. Palutikof, D. Karoly, S. Boulter, & D. Guiart (Eds.), *Natural disasters and adaptation to climate change* (pp. 149–157). Cambridge University Press.

Benson, C. S. (2012). Shifting accountabilities? Understanding the connections between national and provincial fisheries in Papua New Guinea. *Marine Policy*, *36*(4), 859–866.

Blaikie, P. (2006). Is small really beautiful? Community-based natural resource management in Malawi and Botswana. *World Development*, *34*(11), 1942–1957.

Boluk, K. A., Cavaliere, C. T., & Higgins-Desbiolles, F. (2019). A critical framework for interrogating the United Nations Sustainable Development Goals 2030 Agenda in tourism. *Journal of Sustainable Tourism*, *27*(7), 847–864.

Burgos, A., & Mertens, F. (2017). Participatory management of community-based tourism: A network perspective. *Community Development*, *48*(4), 546–565.

Calderon, M. M., & Nawir, A. A. (2006). *An evaluation of the feasibility and benefits of forest partnerships to develop tree plantations: Case studies in The Philippines. CIFOR working paper no. 27*. CIFOR.

Castro, A. P., & Nielsen, E. (Eds.). (2003). *Natural resource conflict management case studies: An analysis of power, participation and protected areas*. FAO.

Chuenpagdee, R., & Jentoft, S. (2009). Governability assessment for fisheries and coastal systems: A reality check. *Human Ecology*, *37*(1), 109–120.

Chuenpagdee, R., Kooiman, J., & Pullin, R. S. V. (2008). Assessing governability in capture fisheries, aquaculture and coastal zones. *The Journal of Transdisciplinary Environmental Studies*, *7*(1), 1–20.

CIFOR (Centre for International Forestry Research). (2014). REDD+ Benefit Sharing. Retrieved from chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.cifor.org/publications/pdf_files/factsheet/4258-factsheet.pdf accessed January 4, 2023

Contreras-Hermosilla, A. (2002). *Law compliance in the forestry sector. An overview*. World Bank Institute.

Creswell, J. W. (2010). Mapping the field of mixed methods research. In A. Tashakkori & C. Teddlie (Eds.), *SAGE handbook of mixed methods in social and behavioral research* (2nd ed., pp. 45–68). Sage.

Derkyi, M. A. A. (2012). Fighting over forest: interactive governance of conflicts over forest and tree resources in Ghana's high forest zone. [Thesis] Universiteit van Amsterdam: African studies centre. Retrieved from https://dare.uva.nl/search?identifier=fd75ddcd-fd33-49e9-bb46-1f9463ed0c0c accessed January 4, 2023

Dubnick, M. (2012). Clarifying accountability: An ethical theory framework. In C. Sampford, N. Preston, & C. A. Bois (Eds.), *Public sector ethics: Finding and implementing values* (pp. 78–92). Routledge.

Engel, A., & Korf, B. (2005). *Negotiation and mediation techniques for natural resource management*. FAO.

FAO (Food and Agriculture Organization of the United Nations). (2020). A fresh perspective—Global Forest Resources Assessment 2020. Retrieved from https://www.fao.org/forest-resources-assessment/2020/en/#:~:text=Africa%20had%20the%20largest%20annual,the%20three%20decades%20since%201990. Accessed January 4, 2023

Giliba, R. A., Boon, E. K., Kayombo, C. J., Musamba, E. B., Kashindye, A. M., & Shayo, P. F. (2011). Species composition, richness and diversity in Miombo woodland of Bereku Forest Reserve, Tanzania. *Journal of Biodiversity*, *2*(1), 1–7.

Gregersen, H. M., & Contreras, A. (1992). *Economic assessment of forestry project impacts* (Vol. 106). FAO.

Hall, J. B., & Swaine, M. D. (1981). *Distribution and ecology of vascular plants in a tropical rainforest. Forest vegetation in Ghana*. Junk Publications.

Hawthorne, W. D. (1998). *Atewa and associated Upland Evergreen forests. Evaluation of recent data, and recommendations for a forthcoming management plan Report for the Ministry of Lands and Forestry/biodiversity unit*.

Holmes, K., & Slater, A. (2012). Patterns of voluntary participation in membership associations: A study of UK heritage supporter groups. *Nonprofit and Voluntary Sector Quarterly*, *41*(5), 850–869.

Jentoft, S. (2007). Limits of governability: Institutional implications for fisheries and coastal governance. *Marine Policy*, *31*(4), 360–370.

Klooster, D., & Masera, O. (2000). Community forest management in Mexico: Carbon mitigation and biodiversity conservation through rural development. *Global Environmental Change*, *10*(4), 259–272.

Knott, S. (2019). Mining Ghana's bauxite would bring in billions from China. But it could also taint the water for 5 million people. *The Washington Post* (28 October). Retrieved from https://www.washingtonpost.com/world/africa/mining-ghanas-bauxite-would-bring-in-billions-from-china-but-it-could-also-taint-the-water-for-5-million-people/2019/10/25/e4726518-e3a7-11e9-b0a6-3d03721b85ef_story.html accessed January 4, 2023

Kooiman, J., & Bavinck, M. (2005). The governance perspective. In J. Kooiman, M. Bavinck, S. Jentoft, & R. Pullin (Eds.), *Fish for life. Interactive governance for fisheries* (pp. 11–24. MARE Publication Series No. 3). Amsterdam University Press.

Kooiman, J., & Bavinck, M. (2013). Theorizing governability–The interactive governance perspective. In M. Bavinck, R. Chuenpagdee, S. Jentoft, & J. Kooiman (Eds.), *Governability of fisheries and aquaculture* (pp. 9–30). Springer.

Kugonza, A., Buyinza, M., & Byakagaba, P. (2009). Linking local communities' livelihoods and forest conservation in Masindi District, North-Western Uganda. *Research Journal of Applied Sciences*, *4*(1), 10–16.

Larsen, T. B. (2008). Forest butterflies in West Africa have resisted extinction… so far (Lepidoptera: Papilionoidea and Hesperioidea). *Biodiversity and Conservation*, *17*(12), 2833–2847.

Larson, A. M., & Soto, F. (2008). Decentralization of natural resource governance regimes. *Annual Review of Environment and Resources*, *33*, 213–239.

Lockwood, M., Davidson, J., Curtis, A., Stratford, E., & Griffith, R. (2010). Governance principles for natural resource management. *Society and Natural Resources*, *23*(10), 986–1001.

Luttrell, C., Loft, L., Gebara, M. F., & Kweka, D. (2015). Who should benefit and why?: Discourses on REDD+ benefit sharing [Japanese]. In A. Angelsen, M. Brockhaus, W. D. Sunderlin, & L. Verchot (Eds.), *Analysing REDD+: Challenges and choices* (pp. 129–152). CIFOR.

Mahanty, S., Guernier, J., & Yasmi, Y. (2009). A fair share? Sharing the benefits and costs of collaborative forest management. *International Forestry Review*, *11*(2), 268–280.

Marfo, E. (2006). *Powerful relations: The role of actor-empowerment in the management of natural resource conflicts: A case of forest conflicts in Ghana*. [Thesis]. Wageningen University.

McCullough, J., Alonso, L. E., Naskrecki, P., Wright, H. E., & Osei-Owusu, Y. (2007). *A rapid biological assessment of the Atewa Range Forest Reserve, Eastern Ghana. RAP Bulletin of Biological Assessment 47*. Conservation International.

Mckean, M., & Ostrom, E. (1995). Common property regimes in the forest: Just a relic from the past? *Unasylva*, *180*(46), 3–15.

Montouroy, Y. (2016). Power and political change within global Forest governance: The EU FLEGT action plan as recentralisation. *European Review of International Studies*, *3*(2), 58–76.

Musavengane, R., & Siakwah, P. (2020). Challenging formal accountability processes in community natural resource management in sub-Saharan Africa. *GeoJournal*, *85*(6), 1573–1590.

Musavengane, R., & Simatele, D. M. (2016). Community-based natural resource management: The role of social capital in collaborative environmental management of tribal resources in KwaZulu-Natal, South Africa. *Development Southern Africa*, *33*(6), 806–821.

Nkhata, B., Breen, C., & Mosimane, A. (2012). Engaging common property theory: Implications for benefit sharing research in developing countries. *International Journal of the Commons*, *6*(1), 52–69.

Ostrom, E. (1999). *Self-governance and forest resources, vol. 15*. CIFOR.

Pagdee, A., Kim, Y. S., & Daugherty, P. J. (2006). What makes community forest management successful: A meta-study from community forests throughout the world. *Society and Natural Resources*, *19*(1), 33–52.

Pokharel, T. (2015). Poverty in Nepal: Characteristics and challenges. *Journal of Poverty, Investment and Development*, *11*, 44–55.

Ribot, J. C. (2002). *Democratic decentralization of natural resources: Institutionalizing popular participation*. World Resources Institute.

Schillemans, T. (2015). Managing public accountability: How public managers manage public accountability. *International Journal of Public Administration*, *38*(6), 433–441.

Seidu, I., Nsor, C. A., Danquah, E., & Lancaster, L. (2018). Odonata assemblages along an anthropogenic disturbance gradient in Ghana's eastern region. *Odonatologica*, *47*(1/2), 73–100.

Siakwah, P. (2017). Are natural resource windfalls a blessing or a curse in democratic settings? Globalized assemblages and the problematic impacts of oil on Ghana's development. *Resources Policy*, *52*, 122–133.

Smyth, A. J., & Dumanski, J. (1993). *FESLM: An international framework for evaluating sustainable land management*. World Soil Resources Report 73 (pp. 74–78). FAO.

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research techniques*. Sage Publications.

Tantoh, H. B., & McKay, T. J. (2020). Rural self-empowerment: The case of small water supply management in northwest, Cameroon. *GeoJournal*, *85*(1), 159–171.

Tesfahunegn, G. B. B., Ayuk, E., & Adiku, K. G. S. (2021). Farmers' perception on forest degradation in eastern and northern regions of Ghana: Implication for developing sustainable forest management strategy. *PLoS One*, *16*(3), e0242444 pp. 1–26.

Thuy, P. T., Brockhaus, M., Wong, G., Tjajadi, J. S., Loft, L., Luttrell, C., & Mvondo, S. A. (2013). *Approaches to benefit sharing: A preliminary comparative analysis of 13 REDD+ countries, vol. 108*. CIFOR.

Tokola, N., Omoro, L., Pellikka, P., & Luukkanen, O. (2009). The benefits and constraints of participation in forest management. The case of Taita Hills, Kenya Fennia-International. *Journal of Geography*, *187*(1), 61–76.

UNWTO (United Nations World Tourism Organization) and UNDP (United Nations Development Programme). (2018). Tourism and the sustainable development goals—Journey to 2030. Retrieved from https://www.unwto.org/global/news/2018-01-23/new-publication-tourism-and-sustainable-development-goals-journey-2030 accessed January 4, 2023

Wattoo, M. A., Ali, T., Khan, M. A. J., & Shahbaz, B. (2010). Stakeholder's role and interactions in context of forestry extension interventions in the Northwest Pakistan. *Pakistan Journal of Agricultural Science*, *47*(2), 173–177.

Yasmi, Y. (2007). *Institutionalization of conflict capability in the management of natural resources: Theoretical perspectives and empirical experience in Indonesia*. PhD Thesis. Wageningen University.

Yeboah-Assiamah, E., Muller, K., & Domfeh, K. A. (2016). Rising to the challenge: A framework for optimizing value in collaborative natural resource governance. *Forest Policy and Economics*, *67*, 20–29.

Yin, R. K. (2009). *Case study research: Design and methods* (4th ed.). Sage.

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